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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,991	04/20/2005	Mitsuo Inoue	403373	5998

23548 7590 12/15/2005

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EXAMINER

BOOTH, RICHARD A

ART UNIT PAPER NUMBER

2812

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/531,991	INOUE ET AL.	
	Examiner	Art Unit	
	Richard A. Booth	2812	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication..
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                           |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0405</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al., U.S. Patent 6,566,683 in view of Funai et al., U.S. Patent 5,550,070.

Ogawa et al. shows the invention substantially as claimed including a semiconductor device fabricating method comprising: an amorphous silicon laminating process for forming an amorphous silicon film on a substrate; an irradiation process for irradiating said amorphous silicon film with laser light to transform at least a part of said amorphous silicon film into a polycrystalline silicon film; wherein said laser light is a linear beam having an energy-density gradient as claimed in the widthwise direction, and said linear beam is generated by transforming pulse laser light with a wavelength in a range between 350 nm or more and 800 nm or less (see, for example, col. 5-lines 12-21 and col. 7-line 57 to col. 10-line 23).

Ogawa et al. does not expressly disclose an oxidation process for oxidizing the surface of said polycrystalline silicon film in an atmosphere including oxygen after the irradiation process, said oxidation process performed in an atmosphere of saturated water vapor under a pressure of 10 atmospheric pressures or more and at a

temperature in a range between five hundred celsius or more and six hundred fifty celsius or less.

Funai et al. discloses an oxidation process for oxidizing the surface of said polycrystalline silicon film in an atmosphere including oxygen after the irradiation process, said oxidation process performed in an atmosphere of saturated water vapor under a pressure of 10 atmospheric pressures or more and at a temperature in a range between five hundred celsius or more and six hundred fifty celsius or less (see col. 10-lines 45-56). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Ogawa et al. so as to form the gate insulation film of Funai et al. in the primary reference of Ogawa et al. because such an oxide film is suitable to be used as a gate oxide in a thin film transistor.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al., U.S. Patent 6,566,683 in view of Funai et al., U.S. Patent 5,550,070 as applied to claims 1, 3-5, and 7-8 above, and further in view of Clementi et al., U.S. Patent 6,248,630.

Ogawa et al. and Funai et al. are applied as above but do not expressly disclose further laminating silicon oxide by a chemical vapor deposition process on the oxidized surface of the polysilicon film.

Clementi et al. discloses a gate insulator formed of a thermally oxidized film 10 and a chemical vapor deposited film 9 (see figs. 1a-1c and col. 6-lines 5-61). With

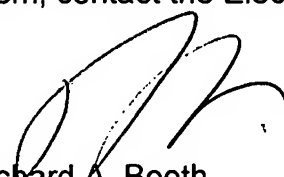
respect to the particular order of processing the cvd and thermally oxidized films, the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results (see *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Ogawa et al. modified by Funai et al. so as to include a gate oxide as taught by Clementi et al. because such a gate oxide film will have less defects since the thermally oxidized portion of the film is abutting the substrate.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is (571) 272-1668. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard A. Booth  
Primary Examiner  
Art Unit 2812

December 12, 2005